

**Remarks**

Claims 1-57 remain pending in the application. No claims are amended in this response. Claims 1-8, 10-27, 29-46 and 48-57 stand rejected. Claims 9, 28 and 47 have been deemed allowable subject matter. The Assignee respectfully traverses the rejection and requests allowance of claims 1-57.

**Claim Rejection Under 35 U.S.C. § 103(a)**

Claims 1-8, 10-27, 29-46 and 48-57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,963,552 to Sabat, Jr. et al. (hereinafter "Sabat") in view of U.S. Patent No. 5,924,039 to Hugenberg et al. (hereinafter "Hugenberg"). The Assignee respectfully traverses the rejection in light of the following discussion.

Independent method claim 1 provides the following:

1. *A method of designing a first antenna system in a communication system, the method comprising:*  
*retrieving demographic information of customers from a first database system;*  
*determining communication traffic based on the demographic information;*  
*retrieving parameters of a second antenna system from a second database system;*  
*determining an antenna system configuration for the first antenna system based on the communication traffic and the parameters of the second antenna system; and*  
*determining a performance of the first antenna system in response to determining the antenna system configuration for the first antenna system.*

Independent design system claim 20 and independent software product claim 39 incorporate similar provisions.

The Office action appears to indicate that Sabat discloses all elements of claim 1, save that the parameters used in determining the first antenna system are associated with a second antenna system, which is supposedly taught by Hugenberg. (Pages 2 and 3 of the Office action.) However, the passages of Sabat and Hugenberg cited in the Office action do not teach or suggest any of the provisions of claim 1. Further, while all of the provisions of claim 1 are repeated in the Office action, and several passages of Sabat and Hugenberg are cited, the Office action does not specifically relate the cited passages to each of the claim provisions. In addition, no motivation exists to combine Sabat and Hugenberg to produce the method, design system, or software product claimed in the present application regarding the design of antenna systems.

*Sabat:*

Generally, Sabat discloses "an open access signal distribution system in which a variety of wireless voice, data and other services and applications are supported." (Column 2, lines 46-48.) The system includes multiple Radio Frequency (RF) Access Nodes (RANs) interconnected via fiber links to centrally-located hub sites and associated base transceiver stations (BTSs). (Fig. 1; and column 6, lines 22 and 23.) Each hub interconnects a set of RANs with one or more BTSs. (Column 6, lines 1-5.) Each RAN supports multiple signals of varying protocols and frequencies to allow concurrent access to the system by multiple access providers. (Column 6, lines 6-21.)

Sabat indicates that each RAN supports different wireless protocols with varying link budgets, thus normally providing different coverage areas for each protocol, with protocols having larger budgets supplying greater coverage areas. (Column 7, lines 45-64.) Thus, to eliminate any coverage gaps between RANs, the smallest link budgets could determine the inter-RAN spacing, resulting in heavily overlapped coverage areas for the protocols identified with larger link budgets. (Id.)

To overcome this problem, Sabat proposes equalizing the link budget of each protocol by the use of simulcasting over multiple RAN sites. (Column 7, lines 65-67.) As a result, reducing the link budget for the higher power protocols is offset by the use of more RANs simultaneously served by sectors of associated BTSs. (Column 8, lines 4-8.) Therefore, BTS coverage for high link budget protocols is supported while maintaining the close inter-RAN spacing required for the small link budget protocols. (Column 8, lines 8-11.) Sabat then provides a brief example of a process that can be used to determine the proper physical spacing of the RANs, the associated simulcast configuration, power levels, and other parameters. (Figs. 5-7; and column 8, line 14, through column 9, line 53.)

However, in determining the various parameters associated with the RANs, Sabat does not employ the method described in claim 1 of the present application. For one, Sabat does not teach or suggest "retrieving demographic information of customers from a first database system" or "determining communication traffic based on the demographic information," as provided for in claim 1. The Office action seems to indicate that column 1, lines 10-44, within the background section of Sabat discusses these elements. However, that passage only indicates that

the wireless communication industry has experienced significant growth through the late 1990s, and does not discuss demographic information, communication traffic, or the like, much less their use in the design of an antenna system.

Also, the Office action attempts to find support in Sabat for a second antenna system by asserting that “each RAN compris[es] two modules for interfacing to first and second base station (col. 3/lines 25-59), which refers to more than two antenna base station systems (Fig. 1)...” (Page 3 of the Office action.) The Assignee disagrees with this characterization of Sabat. According to Fig. 1, and column 3, lines 25-59, multiple RAN sites 50, wherein the system antennas 56 are located, communicate by way of a *common transport medium* (i.e., hub 30 and high speed data link 40) with multiple BTSs 20. Thus, the BTSs, the RANs, and the common transport system comprise a *single antenna system*. Sabat emphasizes this stance by stating that the RANs “each provide radio signal coverage to a predetermined portion of a *total system coverage area*.” (Column 3, lines 35-37; emphasis supplied.) More importantly, Sabat does not mention or suggest “retrieving parameters of a second antenna system from a second database,” as provided for in claim 1. Instead, according to the process in Sabat mentioned above, the configuration of the RANs is determined collectively as a single antenna system, and thus does not depend on the parameters of a second antenna system.

Also, the Office action does not indicate which portion of Sabat purportedly teaches or suggests “determining a performance of the first antenna system in response to determining the antenna system configuration from the first antenna system.” Sabat does not appear to discuss such an operation.

*Hugenberg:*

Generally, Hugenberg discloses “a two-way digital [cellular] network using a polarization orthogonal to the polarization of a larger digital broadcast video cell system.” (Column 3, lines 29-31.) Therefore, the digital cellular network may be overlaid onto a digital broadcast video network, allowing the cellular network to be completely autonomous from the broadcast video network. (Column 3, line 32-36.) As a result, both services may employ the same frequency spectrum by way of reducing interference between the networks via signal polarization. (Column 3, lines 36-39.) Thus, Hugenberg does not disclose or make obvious a method, system or software product for *designing a first antenna system* for a communication

system, as Hugenberg does not address a method for antenna system design in any way.

Regarding Hugenberg, the Office action indicates that "Hugenberg teaches ... the designing of the antennas is corresponding to the population and the demographic information of the customers (col. 4/lines 42-64), and clearly, as shown in Fig. 5, for instance, the configuration of the first antenna system (network cell site) would be depended on the communication traffic and parameters of the second antenna system (users/clients) due to the demographic information of less or more subscribed users and other factors as communication traffic, multiple access techniques and speeds etc (refer to col. 7/lines 10-16)." Page 3 of the Office action. While Hugenberg acknowledges in a general way that a selection between two specific methods of combining a two-way digital cellular network and a digital broadcast network may "depend on various factors such as demographics, licenses, the topography, the selected RF hardware, and the link budgets," (column 4, lines 42-44), the Assignee respectfully contends that Hugenberg neither teaches nor suggests any portion of "determining an antenna system configuration for the first antenna system based on the communication traffic and the parameters of the second antenna system," as set forth in claim 1. For example, Hugenberg does not mention communication traffic, much less that such traffic could be combined with parameters of a second antenna system to determine an antenna system configuration for a first antenna system. Also, Hugenberg does not discuss using parameters of a second antenna system, with or without communication traffic, to determine an antenna system configuration for a first antenna system.

*Motivation to Combine Sabat and Hugenberg:*

Further, as Hugenberg does not discuss a method, system, or software product for *designing* an antenna system in a communication system, no motivation exists to combine Sabat and Hugenberg to produce such a method, system, or software product as provided by the claims of the present application.

Additionally, Hugenberg and Sabat discuss radically different communication systems, as described above. Thus, combining the specific process of Sabat for specifying various aspects of its RANs, each of which can carry multiple signals of varying protocols, is not combinable with the communication system of Hugenberg, as Hugenberg does not employ RANs or anything like them.

As independent claims 20 and 39 provide similar limitations to those of independent claim 1, which has been shown in the foregoing discussion to be allowable, the Assignee asserts that claims 20 and 39 are allowable for at least the reasons provided above in support of claim 1, and such indication is respectfully requested.

Further, claims 2-8 and 10-19 depend from independent claim 1, claims 21-27 and 29-38 depend from independent claim 20, and claims 40-46 and 48-57 depend from independent claim 39. Since each of independent claims 1, 20 and 39 have been shown allowable in the foregoing discussion, the Assignee contends that claims 2-8, 10-19, 21-27, 29-38, 40-46 and 48-57 are allowable for at least the same reasons as those provided above for their respective independent claims, and such indication is respectfully requested.

#### Allowable Subject Matter

The Office action states that “[c]laims 9, 28 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.” (Page 7 of the Office action.) The Assignee thanks the Examiner for his consideration of those claims. In light of the above discussion, since claims 9, 28 and 47 depend from independent claims 1, 20 and 37, respectively, the Assignee asserts that claims 9, 28 and 47 are allowable in their current form for at least the reasons provided above in support of the independent claims.

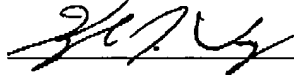
#### Conclusion

Based on the above remarks, the Assignee submits that claims 1-57 are allowable. Additional reasons in support of patentability exist, but such reasons are omitted in the interests of clarity and brevity. The Assignee respectfully requests allowance of claims 1-57.

The Assignee believes no additional fees are due with respect to this filing. However, should the Office determine additional fees are necessary, the Office is hereby authorized to charge Deposit Account No. 21-0765.

Respectfully submitted,

Date: 1/5/06



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